PROPOSED (6/18/04)

Temporary Covered Source Permit
Review Summary (Renewal)

Application File No.: 0026-06

Permit No: 0026-04-CT

Applicant: Kiewit Pacific Company

Facility Title: 500 TPH Portable Stone Quarrying and Processing Plant with 1,000 kW Diesel Engine Generator
Located at Various Locations, State of Hawaii

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Application Date: January 28, 2004 (received on February 2, 2004)

Proposed Project:

SICC 1442

This project consists of renewing an existing temporary covered source permit, CSP No. 0026-04-CT issued March 2, 2000 and amended on March 31, 2004. This facility is a 500 TPH portable stone quarrying and processing plant with 1,000 kW diesel engine generator.

This stone quarrying and processing plant processes raw material, consisting of basalt rock. Rocks are loaded into the feeder of the Telsmith jaw crusher by a front end loader. Part of the material travels via conveyor #1 to stacker # 1 and then to stock pile #1. The other part of the material travels on conveyors #2, #3, and #4 to the JCI vibrating screen and Torgeson Impact Crusher. Undersized material travels via conveyor #6 to stacker #2 and then to stock pile #2. Oversize material travels on conveyor #5 back to conveyor #3 and then back to the JCI vibrating screen to be crushed again.

Water for dust control at the present location is supplied by a water well. The water well flows at approximately 80 gpm at a pressure of 40 to 50 psi. As a backup, water is also stored in a portable 4,000 gallon water tank. Two 3/4 hp water pumps provide pressure for the six (6) water spray bars located throughout the plant.

Electricity for the plant is supplied by 1,000 kW and 60 kW diesel engine generators. Diesel fuel is stored in a portable 2,000 gallon diesel fuel tank.

No changes to any existing permit terms and/or permit limitations were requested in the renewal application except for the inclusion of an alternate operating scenario regarding replacement of the 1,000 kW diesel engine generator.

A check for $500.00 was also submitted by the applicant for a renewal to a temporary covered source permit (non-toxic source).

Equipment Description:

500 TPH Portable Stone Quarrying and Processing Plant

1. One (1) 500 TPH Telsmith Primary Jaw Crusher, Model “42 x 48", Serial No. 6914, manufacturing date -1965, electric powered

2. One (1) 300 TPH Torgeson Impact Crusher, Model CHX24, Serial No. CHX24, manufacturing date -1990, electric powered

3. One (1) 6' x 16' JCI Vibrating Screen, Model No. 6163-32, Serial No. S031110, manufacturing date - 2003, electric powered

4. Miscellaneous Conveyors, #1 through #6

5. Waterspray system consisting of six (6) waterspray bars located throughout the plant as indicated in the Air Pollution Control section below, one (1) 4,000 gallon water tank and two (2) 3/4 hp water pumps

6. One (1) 1,000 kW Caterpillar Diesel Engine Generator, Model 3512, Serial No. 24Z05405, manufacture date - 1993, fired on diesel fuel no. 2, max. fuel consumption rate - 70.7 gal/hr, stack parameters - diameter = 8", vertical stack, height = 17'-0", exhaust temp.= 477 deg C, exhaust flow = 8,651 cfm

Air Pollution Controls:

1. Maximum sulfur content of the diesel fuel no. 2 fired in the diesel engine generators shall not exceed 0.5% by weight.

2. The stone quarrying and processing plant is equipped with water sprays to control fugitive dust. Water sprays are located as follows:

   a. At the feeder;
   b. At the transfer point from conveyor #1 to stacker #1;
   c. At the transfer point from conveyor #4 to vibrating screen;
   d. At the transfer point from impact crusher to conveyor #5;
   e. At the transfer point from conveyor #5 to conveyor #3;
   f. At the transfer point from conveyor #6 to stacker #2.

3. Fugitive dust from the stockpiles, crushing area and unpaved access roads are controlled by a water truck.

Insignificant Activities:

1. *Per HAR 11-60.1-82(f)(1)*
   One (1) 2,000 gallon diesel fuel tank

2. *Per HAR 11-60.1-82(f)(2)*
   One (1) 60 kW John Deere Diesel Engine Generator, Model 4045 T, Serial No. T4045T326391, manufacture date - 1986, fired on diesel fuel no. 2, max. fuel consumption rate - 3 gal/hr
   Heat input capacity = 3 gal/hr x 137,000 Btu/gal = 411,000 Btu/hr < 1 MMBtu/hr

Applicable Requirements:

Hawaii Administrative Rules (HAR)

Title 11, Chapter 59 Ambient Air Quality Standards
Title 11, Chapter 60.1 Air Pollution Control
- Subchapter 1 General Requirements
- Subchapter 2 General Prohibitions
  - HAR 11-60.1-31 Applicability
  - HAR 11-60.1-32 Visible Emissions
  - HAR 11-60.1-33 Fugitive Dust
  - HAR 11-60.1-38 Sulfur Oxides from Fuel Combustion
- Subchapter 5 Covered Sources
- Subchapter 6 Fees for Covered Sources, Noncovered Sources, and Agricultural Burning
- Subchapter 8 Standards of Performance for Stationary Sources
  - HAR 11-60.1-161 New Source Performance Standards
- Subchapter 10 Field Citations

Federal Requirements
40 CFR Part 60 - Standards of Performance for New Stationary Sources (NSPS)
Subpart A: General Provisions
Subpart OOO: Standards of Performance for Nonmetallic Mineral Processing Plants

Applicable to the 300 TPH Torgeson Impact Crusher and 6' x 16' JCI Vibrating Screen due to the date of manufacturer (1990 and 2003, respectively). The 500 TPH Telsmith Primary Jaw Crusher is not subject to NSPS since the date of manufacture is before August 31, 1983 (manufacturing date is 1965).

Non-applicable Requirements:

Hawaii Administrative Rules (HAR)
Title 11, Chapter 60.1 Air Pollution Control
Subchapter 7 Prevention of Significant Deterioration
Subchapter 9 Hazardous Air Pollution Sources

Federal Requirements
40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants
40 CFR Part 63 - National Emission Standards for Hazardous Air Pollutants for Source Categories (Maximum Achievable Control Technologies (MACT) Standards

Best Available Control Technology (BACT):

A Best Available Control Technology (BACT) analysis is required for new or modified sources that have the potential to cause a net increase in air pollutant emissions above significant levels as defined in HAR §11-60.1-1. A BACT analysis is not required since there are no proposed modifications to the operations for this renewal application.

Consolidated Emissions Reporting Rule (CERR):

40 CFR Part 51, Subpart A - Emission Inventory Reporting Requirements, determines CER based on the emissions of criteria pollutants from Type B point sources (as defined in 40 CFR Part 51, Subpart A), that emit at the CER triggering levels as shown in the table below.

Pollutant	Type B CER Triggering Levels [1] (tpy)	Pollutant	In-house Total Facility Triggering Levels [2] (tpy)
NO_x	≥100	NO_x	≥25
SO_2	≥100	SO_2	≥25
CO	≥1000	CO	≥250
PM_{10}	≥100	PM/PM_{10}	≥25
VOC	≥100	VOC	≥25
Pb	≥5	HAPS	≥5

[1] Based on actual emissions
[2] Based on potential emissions

This facility does not emit at the CER triggering levels. Therefore, CER requirements are not applicable.

Although CER for the facility is not triggered, the Clean Air Branch requests annual emissions reporting from those facilities that have *facility-wide* emissions of a single air pollutant exceeding in-house triggering levels. Since the total emissions of NO_x and PM within the facility are both greater than 25 tons per year, annual emissions reporting for the 1,000 kW diesel engine generator and the stone processing plant will be required for in-house recordkeeping purposes.

Compliance Data System (CDS):

Applicable since this is a covered source.

Compliance Assurance Monitoring (CAM):

40 CFR Part 64

The purpose of Compliance Assurance Monitoring (CAM) is to provide a reasonable assurance that compliance is being achieved with large emission units that rely on air pollution control device equipment to meet an emission limit or standard. Applicability of the CAM rule is determined on a pollutant specific basis for each affected emission unit. Each determination is based on a series of evaluation criteria. In order for a source to be subject to CAM, each source must:

- Be located at a major source per Title V of the Clean Air Act Amendments of 1990;
- Be subject to federally enforceable applicable requirements;
- Be fitted with an “active” air pollution control device;
- Have pre-control device potential emissions that exceed applicable major source thresholds; and
- Not be subject to certain regulations that specifically exempt it from CAM.

Emission units are any part or activity of a stationary source that emits or has the potential to emit any air pollutant.

This source is not subject to Compliance Assurance Monitoring (CAM) since this facility is not a major source per Title V of the CAA Amendments of 1990.

Synthetic Minor Source:

This facility is a synthetic minor source as the facility would be classified as a major source *without* operational limitations (i.e., operating at 8,760 hrs/year), however, is classified as a non-major source through the use of operational restrictions of 2,080 hrs/yr for the 1,000 kW diesel engine generator and the 500 TPH stone quarrying and processing plant.

Alternate Operating Scenario:

Temporary replacement of the 1,000 kW diesel engine from the site is allowed provided the following provisions are adhered to:

a. Written notification identifying the reason(s) for the replacement of the diesel engine from the site of operation is submitted to and approved by the Department of Health prior to the exchange;

b. The temporary replacement unit is the same size or smaller with equal or lesser emissions;

c. The temporary replacement unit complies with all applicable conditions including all air pollution control equipment requirements, operating restrictions, and emission limits;

d. The diesel engine shall be repaired and returned to service at the same location in a timely manner;

e. Prior to the removal and return of the diesel engine, the permittee shall submit to the Department of Health written documentation on the removal and return dates and on the make, size, model and serial numbers for both the temporary replacement unit and the installed unit;

f. The permittee shall also submit any additional information as requested by the Department of Health, which may include ambient air quality impact assessment verifying that the State Ambient Air Quality Standards are met;

g. The permittee shall, contemporaneously with making a change from one operating scenario to another, record in a log at the permitted facility the scenario under which it is operating and, if required by any applicable requirement or the Department of Health, submit written notification to the Department of Health; and

h. The terms and conditions under each operating scenario shall meet all applicable requirements, including the special conditions of this permit.

Project Emissions:

1. Emissions for 1,000 kW diesel engine generator - Calculated at 2,080 hrs/yr at a maximum fuel consumption rate of 70.7gal/hr.

Example: tpy = EF x (137,000 Btu/gal) x (70.7 gal/hr) x (1 MMBtu / 1,000,000 Btu) x (2,080 hrs/yr)÷ (2,000 lb/ton)

Pollutant	Emission Factors (lb/MMBtu)	Emission Rate (lb/hr)	Controlled Annual Emissions (2,080 hrs/yr) (tpy)	Uncontrolled Annual Emissions (8,760 hrs/yr) (tpy)
NO_x	3.2	30.99	32.23	135.76
CO	0.85	8.23	8.56	36.06
SO_2	0.51	4.94	5.14	21.64
PM_{10}	0.0573	0.56	0.58	2.43
PM	0.0697	0.68	0.70	2.96
VOC	0.09	0.87	0.91	3.82
Benzene	7.76 E-04	7.52 E-03	7.82 E-03	0.03
Toluene	2.81 E-04	2.72 E-03	2.83 E-03	0.01
Xylenes	1.93 E-04	1.87 E-03	1.94 E-03	0.01
Propylene	2.79 E-03	2.70 E-02	2.81 E-02	0.12
Formaldehyde	7.89 E-05	7.64 E-04	7.95 E-04	3.35 E-03
Acetaldehyde	2.52 E-05	2.44 E-04	2.54 E-04	1.07 E-03
Acrolein	7.88 E-06	7.63 E-05	7.94 E-05	3.34 E-04
Total PAH	2.12 E-04	2.05 E-03	2.14 E-03	0.01

Emission factors from AP-42 (10/96), Table 3.4-1. Gaseous Emission Factors for Large Stationary Diesel and All Stationary Dual-Fuel Engines; Table 3.4-2. Particulate and Particle-Sizing Emission Factors for Large Uncontrolled Stationary Diesel Engines; Table 3.4-3. Speciated Organic Compound Emission Factors for Large Uncontrolled Stationary Diesel Engines; and Table 3.4-4. PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines.

2. Emissions for Stone Processing Operations - Calculations based on 500 TPH maximum processing rate at a maximum of 2,080 hrs/yr or 1,040,000 tons per year using watersprays for controls.

Source	Pollutant	Emission Factors [4] (lb/ton)	Emission Rate (lb/hr)	Controlled Annual Emissions (2,080 hrs/yr) (tpy)	Uncontrolled Annual Emissions (8,760 hrs/yr) (tpy)
Primary crushing (controlled)	PM_{10}	0.00059 [1]	0.295	0.307	1.29
	PM	0.00124 [1]	0.62	0.645	2.72
Secondary crushing (controlled)	PM_{10}	0.00059 [1]	0.295	0.307	1.34
	PM	0.00124 [1]	0.62	0.645	2.72
Screening (controlled)	PM_{10}	0.00084 [1]	0.42	0.437	1.84
	PM	0.00176 [1]	0.880	0.915	3.85

Conveyor transfer points (controlled) (12 transfer points)	PM_{10}	0.000048 [1]	0.024	0.025(12) = 0.30	0.11(12) = 1.26
	PM	0.000101 [1]	0.051	0.053(12) = 0.63	0.22(12) = 2.68
Truck unloading: fragmented stone	PM_{10}	0.000016 [1]	0.008	0.008	0.035
	PM	0.000034 [1]	0.017	0.018	0.074
Truck loading-conveyor: crushed stone	PM_{10}	0.00010 [1]	0.050	0.052	0.219
	PM	0.00021 [1]	0.105	0.109	0.46
Wind erosion: storage piles	PM_{10}	0.013 [2]	-----	2.09	8.81
	PM	0.028 [2]	-----	4.42	18.63
Vehicle traffic: unpaved roads	PM_{10}	3.4 lb/VMT [3]	-----	5.05	21.28
	PM	11.5 lb/VMT [3]	-----	17.09	71.96
Total	PM_{10}			8.55	36.07
	PM			24.47	103.09

[1] Emission factors from AP-42, Table 11.19.2-2. Emission Factors for Crushed Stone Processing Operations (1/95)

[2] Emission factors from AP-42, Section 13.2.4. Aggregate Handling and Storage Piles (1/95)
E = k(0.0032) x [((U/5)**1.3) / ((M/2)**1.4)]
E = emission factor (lb/ton)
k = particle size multiplier (dimensionless) = 0.35 (PM_{10}), 0.74 (PM)
U = mean wind speed (mph) = 10.9 (state avg.)
M = material moisture content (%) = 0.7
control efficiency = 70%, assuming a watertruck for stockpiles

[3] Emission factors from AP-42, Section 13.2.2. Unpaved Roads (12/03)
$E = k \times (s/12)^{a} \times (W/3)^{b}$
E = size-specific emission factor (lb/VMT)
k = constant (lb/VMT) = 1.5 (PM_{10}), 4.9 (PM)
a = 0.9 (PM_{10}), 0.7 (PM)
b = 0.45 (PM_{10}), 0.45 (PM)
s = surface material silt content (%) = 10
W = mean vehicle weight (tons) = 26.5 tons
M = surface material moisture content (%) = 0.2
VMT = ((500 TPH x 2,080 hrs/yr) / 21 tons/truckload) x (0.2 miles/truckload)
= 9,905 miles/yr
control efficiency = 70%, assuming watertruck for unpaved roads

[4] Fugitive emissions

3. Total Emissions for Facility

Pollutant	1,000 kW Diesel Engine Generator Controlled (2,080 hrs/yr) (tpy)	1,000 kW Diesel Engine Generator Uncontrolled (8,760 hrs/yr) (tpy)	Quarrying and Stone Processing Operations Controlled (2,080 hrs/yr) (tpy)	Quarrying and Stone Processing Operations Uncontrolled (8,760 hrs/yr) (tpy	Total Controlled (2,080 hrs/yr) (tpy)	Total Uncontrolled (8,760 hrs/yr) (tpy)
NO_x	32.23	135.76	-----	-----	32.23	135.76
CO	8.56	36.06	-----	-----	8.56	36.06
SO_x	5.14	21.64	-----	-----	5.14	21.64
PM_{10}	0.58	2.43	8.55	36.07	9.13	38.50
PM	0.70	2.96	24.47	103.09	25.17	106.05
VOC	0.91	3.82	------	------	0.91	3.82

Air Quality Assessment:

An ambient air quality impact analysis (AAQIA) for the 1,000 kW diesel engine generator is not required for this renewal application since there are no proposed modifications to the diesel engine generator or its operations.

Significant Permit Conditions:

The significant permit conditions include the following:

1. The type of fuel burned in the 1,000 kW diesel engine generator is limited to diesel fuel no. 2 with a maximum sulfur content not to exceed 0.5% by weight.

2. Operational restrictions for the 1,000 kW diesel engine generator and 500 TPH stone quarrying and processing plant are each limited to 2,080 hrs/yr. The hours of operation for the 1,000 kW diesel engine generator shall represent the hours of operation for the 500 TPH stone quarrying and processing plant.

3. Recordkeeping of the operational hours of the 1,000 kW diesel engine generator on a monthly and rolling twelve-month basis.

4. Recordkeeping of the fuel consumption of the 1,000 kW diesel engine generator on an annual basis.

5. Recordkeeping of the total tons of material processed by the 500 TPH stone quarrying and processing plant on an annual basis.

6. Opacity requirements from NSPS Subpart OOO of 15% and 10% for the impact crusher and vibrating screen, respectively.

7. Annual opacity testing for the impact crusher and vibrating screen for NSPS Subpart OOO performance testing. Monthly visible emissions observations of opacity are also required for monitoring purposes.

8. Monthly and annual visible emissions observations of opacity for the 1,000 kW diesel engine generator for monitoring purposes.

9. Temporary replacement of the 1,000 kW diesel engine is allowed.

10. Added Compliance Certification Forms to the permit.

11. Added Attachment II, Special Conditions - Insignificant Activities to the permit.

Conclusion and Recommendations:

Recommend issuing the permittee a renewal for the temporary covered source permit subject to the significant permit conditions above. A 30-day public comment period and 45-day EPA review period are also required.

Reviewer: Darin Lum
Date: 6/04